

WHAT IS CLAIMED IS:

1. A network device configured to control communication of data frames between stations, comprising:

a plurality of receive ports configured to receive data frames from the stations; and  
data frame processing logic configured to:

5                   determine a priority associated with a received data frame, and

                  determine whether a location in an external memory is available for storing the data  
frame, based on the priority of the received data frame.

2. The network device of claim 1, wherein the data frame processing logic is further  
configured to:

drop the data frame when a location in the external memory is not available.

3. The network device of claim 1, wherein the data frame processing logic is further  
configured to:

transfer the data frame to the external memory when a location in the external  
memory is available.

4. The network device of claim 1, further comprising:

at least one memory configured to store address information corresponding to locations in  
the external memory, the at least one memory being divided into a number of groups corresponding  
to priorities associated with data frames received by the network device.

5. The network device of claim 4, wherein when determining whether a location in the  
external memory is available, the data frame processing logic is configured to:

access the at least one memory, and

determine whether an address in a first one of the groups corresponding to the priority of the  
5 data frame is available.

6. The network device of claim 4, wherein the at least one memory comprises:  
a first memory associated with high priority data frames, and  
a second memory associated with data frames having normal or low priority.

7. The network device of claim 1, further comprising:  
at least one memory divided into a number of groups corresponding to priorities  
associated with data frames received by the network device, the at least one memory being  
configured to store address pointers corresponding to locations in the external memory that  
5 are available for storing received data frames, the number of address pointers in each  
of the groups being programmable.

8. In a network device that controls communication of data frames between stations, a  
method comprising:

receiving data frames from the stations;  
determining a priority associated with a received data frame; and  
5 determining, based on the priority of the received data frame, whether a location in an  
external memory is available for storing the data frame.

9. The method of claim 8, further comprising:  
dropping the data frame when a location in the external memory is not available.

10. The method of claim 9, wherein the dropping a data frame includes:  
discarding the data frame and not forwarding the data frame to its intended destination.

11. The method of claim 8, further comprising:

transferring the data frame to the external memory when a location in the external memory is available.

12. The method of claim 8, wherein the determining whether a location in external memory is available includes:

accessing a memory on the network device, the memory being divided into a number of queues corresponding to priorities associated with data frames received by the network device, and

5 determining whether an address in a first one of the queues corresponding to the priority of the data frame is available.

13. The method of claim 8, wherein when the priority of the received data frame is high, the determining whether a location in the external memory is available includes:

accessing a first queue associated with high priority data frames, and

determining whether an address in the first queue is available.

14. The method of claim 8, wherein the determining a priority associated with the received data frame includes:

mapping a priority indicator received with the data frame to one of a number of priority levels supported by the network device.

15. A network device configured to control communication of data frames between stations comprising:

a plurality of receive ports configured to receive data frames from the stations;

a first queue associated with high priority data frames, the first queue being configured to

5 store pointers corresponding to addresses in an external memory;

a second queue associated with data frames having at least one of normal and low priority, the second queue being configured to store pointers corresponding to addresses in the external memory; and

processing logic configured to:

- 10           determine a priority associated with a received data frame,  
              access one of the first and second queues based on the priority of the data  
frame, and  
              determine whether a pointer is available in said accessed one of the first and  
second queues.

16. The network device of claim 15, wherein the processing logic is further configured to:

              obtain a first pointer when a pointer is available in one of the first and second queues corresponding to the priority of the received frame, and

- 5           transfer the data frame to the external memory at an address identified by the first pointer.

17. The network device of claim 15, wherein the processing logic is further configured to:

              drop the data frame when a pointer is not available in one of the first and second queues corresponding to the priority of the received data frame.

18. The network device of claim 17, wherein the network device is configured to stop processing the dropped data frame and not forward the dropped data frame to its intended destination.

19. The network device of claim 15, wherein when determining a priority associated with the received data frame, the processing logic is configured to:

map a priority indicator received with the data frame to one of a number of priority levels supported by the network device.